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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,374	05/22/2001	Yuzuru Suzuki	SUM-02201	8694

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EXAMINER

AGUIRRECHEA, JAYDI A

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/862,374

Applicant(s)

SUZUKI ET AL.

Examiner

Jaydi A. Aguirrechea

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on February 23, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 15-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-20 is/are allowed.
- 6) ☒ Claim(s) 1-10, 15-17 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 10 and 15-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leibovich (US 4928028) in view of Sudler et al. (US 4041336).

With regards to claims 1 and 10, Leibovich discloses an electromagnetic actuator (Figure 4) comprising: two coils (60, 61) disposed coaxially (Figure 4), inside a hollow stator yoke (56, 57) composed of a ferromagnetic material (Column 6, lines 48-60); a movable magnet unit (72) and movable yoke unit (73, 74) are disposed inside the coils with a small clearance and the magnets are attached to the shaft (75, 76); and the movable assembly travels in the axial direction by the interaction between a magnetic field and the current passing through the coils (column 9, lines 3-41).

However, it fails to disclose the ferromagnetic material being a soft magnetic material.

Sudler et al. teach the use of a soft magnetic material in the stator core for the purpose of improving the efficiency of the motor.

It would have been obvious to one skilled in the art at the time the invention was made to use the stator core made of a soft magnetic material as disclosed by Sudler et al. on the linear actuator disclosed by Leibovich for the purpose of improving the efficiency of the motor.

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3. With regards to claim 2, Leibovich teaches the current in one coil opposes the current in the second coil.
4. With regards to claim 3, Leibovich teaches the coils are wound in separate bobbins (Abstract) having identical shape, and the bobbins are disposed axially inside the stator yoke with a predetermined distance between them.
5. With regards to claims 4 and 15, Leibovich discloses the bearings (54a) and the flange (54).
6. With regards to claim 5, the magnet disclosed by Leibovich is axially magnetized.
7. With regards to claims 6 and 16, the yokes sandwich the magnets (Figure 4).
8. With regards to claims 7, 8 and 17, Leibovich shows in figures 3-6 the permanent magnet having a smaller outer diameter than that of the yokes.
9. With regards to claim 21, the combination of Leibovich and Sudler discloses the claimed invention including the magnets having a smaller diameter than that of the yoke. (Figure 3 and 4)
10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leibovich and Sudler as applied to claim 9 above.

The combination of Leibovich and Sudler discloses the claimed invention except for the distance that the actuator travels in the axial direction.

It would have been an obvious matter of design choice to disclose the distance the actuator travels, since the applicant has not disclosed that traveling 1.0 mm or less solves any problem or is for a particular reason. It appears that the claimed invention would perform equally well with longer distances.

Allowable Subject Matter

11. Claims 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The indicated allowability of claims 7-9 and 17 is withdrawn in view of the teachings of Leibovich.

Response to Arguments

13. Applicant's arguments filed on February 23, 2004 have been fully considered but they are not persuasive.

14. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., single shafts, and the magnet unit opposing the coil assembly radially) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

15. Applicants argue that their invention operates according to Fleming's left hand rule, while the Prior Art operates by the action of magnetic attraction and repulsion between pole members and the magnetic disc members. The Examiner recognizes the difference, however, the structure claimed in the independent claims 1, 10 and 21 does not differentiate from that of the prior art, therefore the rejection is proper.

Conclusion

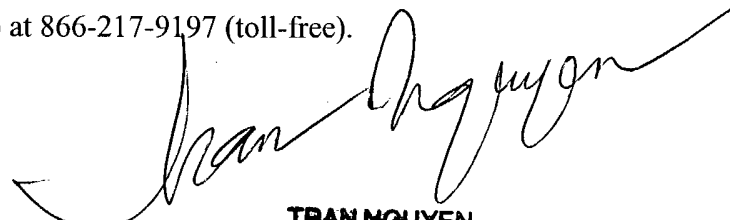
16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaydi A. Aguirrechea whose telephone number is 571-272-2018. The examiner can normally be reached on M-Th 9-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAA
4/14/04



TRAN NGUYEN
PRIMARY EXAMINER